

A contribution to the biology, distribution and immature stages of the Pachygronthinae of South Africa (Hemiptera: Lygaeidae)¹

by

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SYNOPSIS

This paper presents data on the distribution, host plants and immature stages of all the known South African species of the lygaeid subfamily Pachygronthinae. Four faunal components are apparent, namely Cape, forest, tropical and savannah elements. Host plant data emphasizes the distinctiveness of the two tribes of this subfamily: the Pachygronthini feed on the seeds of sedges, whereas all of the Teracriini are grass-feeders.

The Pachygronthinae is one of the smaller subfamilies of the Lygaeidae. Eight species included in four genera are known to occur in South Africa.

Slater (1955) revised the subfamily on a world-wide basis and discussed the zoogeography. Thus, the overall distribution pattern for the group is not discussed here. Slater's (1964) paper contains a key to the South African genera and species.

Despite the limited size of the South African fauna the subfamily contains some very interesting species. Field work in South Africa in 1967-8 has enabled me to assemble information on the biology of the group and to collect immature stages of several of the species.

ZOOGEOGRAPHY

The species of South African Pachygronthinae are separable into four rather distinct faunal elements.

(1) *Cape element*: the monotypic *Uttaris pallidipennis* (Stål) appears to be common only in the southern Cape area which is largely occupied at present by the Cape macchia floral association. Our only host record for the species is on a sedge genus (*Fuirena*) that Mr. Stuckenberg informs me has a wider distribution. The apparent concentration of the distribution of *Uttaris* within the southern Cape area may be the result of inadequate collecting and it is true that *Uttaris* has been taken on occasion outside of this area. However, we collected extensively in sedge habitats in the Transvaal and Natal for months in 1967 and 1968 without taking the species, whereas it is a common species in the southern Cape. It therefore appears on present evidence that *Uttaris* is common and widespread in the southern Cape below the mountains, and in large part is associated with mesic, temperate conditions, but is rare and isolated elsewhere. My present interpretation of the

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situation is that this species had a more comprehensive distribution northward in the past, probably at the time of the last pluvial (see Stuckenberg, 1969), but has subsequently become largely restricted to the area now occupied by the macchia as the regions to the north have become more arid. It has thus persisted north of the southern Cape area only in isolated favorable habitats. It is important to note that as with many of the faunal and floral components of the southern Cape the species is very isolated taxonomically from other members of the subfamily.

(2) *Southern African Forest Region: Pachygrontha lineata* Germar has a curious distribution (see species discussion), being found most commonly in the region of the macchia in southern South Africa but with scattered records in Natal, the Transvaal and Rhodesia. Prior to field work in South Africa I had believed that this species showed the same distribution pattern as did *Uttaris pallidipennis* and that it would prove to have similar habitat requirements. However, our collecting indicates that in contrast to *U. pallidipennis*, *P. lineata* is a forest-inhabiting species that breeds on *Kobresia lancea* (Thunb.) Koyama which is a large sedge that grows in dense shade. This habitat is quite unlike that in which *Uttaris* is found. Like the latter, *P. lineata* appears to have been widely distributed to the northward during the last pluvial (at least to the southern Congo), and to have left remnant populations in forested kloofs to the north and east of its present center of distribution in the southern Cape. Presumably cooler and moister conditions would have greatly increased the forested area of South Africa. *P. pseudolineata* presumably represents an isolated population derived from *lineata*.

(3) *Tropical Corridor: Pachygrontha bipunctata* Stål is the only pachygronthine to show such a distribution, but it does so strikingly. *Bipunctata* is an extremely widespread tropical species with a distribution that includes most of the African tropics and extends eastward through the Indian Ocean to the East Indies, New Guinea and most of tropical Asia.

This species often swarms in vast numbers in damp meadows in the Natal coastal lowlands. Elsewhere it has only been taken in the lowveld of the eastern Transvaal. It appears to be a perfect example of a tropical species that extends its range southward along the hot humid southeastern coast.

(4) *Savannah*: three species of *Opistholeptus* and one of *Teracrius* occur in South Africa. All of these are grass feeders and are common in the bushveld and highveld of the Transvaal and Orange Free State, but are either scarce or absent in the Natal tropical corridor and the southwest Cape. *T. namaquensis* does occur in the macchia but it is uncommon there and gives the impression of either being poorly adapted to the area or a recent element in the fauna. All of the teracriine species are widely distributed in the savannah country in tropical East Africa and several occur in the West African savannah as well.

The two tribes of Pachygronthinae are not closely related morphologically. The host plant relationships tend to strengthen and emphasize the degree of difference. While the host plants for the majority of the world species are unknown, all of the members of the tribe Pachygronthini whose host plants are known feed on the seeds of sedges, whereas all of the Teracriini are grass-feeders. This holds true for the South African fauna and is of special importance relative to the position of the genus *Uttaris* within the tribe Pachygronthini which has been a matter of some question. The discovery that *Uttaris pallidipennis* is

a sedge-feeding insect considerably strengthens the evidence for its inclusion in the Pachygronthini.

Uttaris pallidipennis (Stål)

1859. *Ischnodemus pallidipennis* Stål, *Freg. Eug. Res. Ins. Hem.*: 248.

1874. *Uttaris pallidipennis* Stål, *Enum. Hem.* 4: 138.

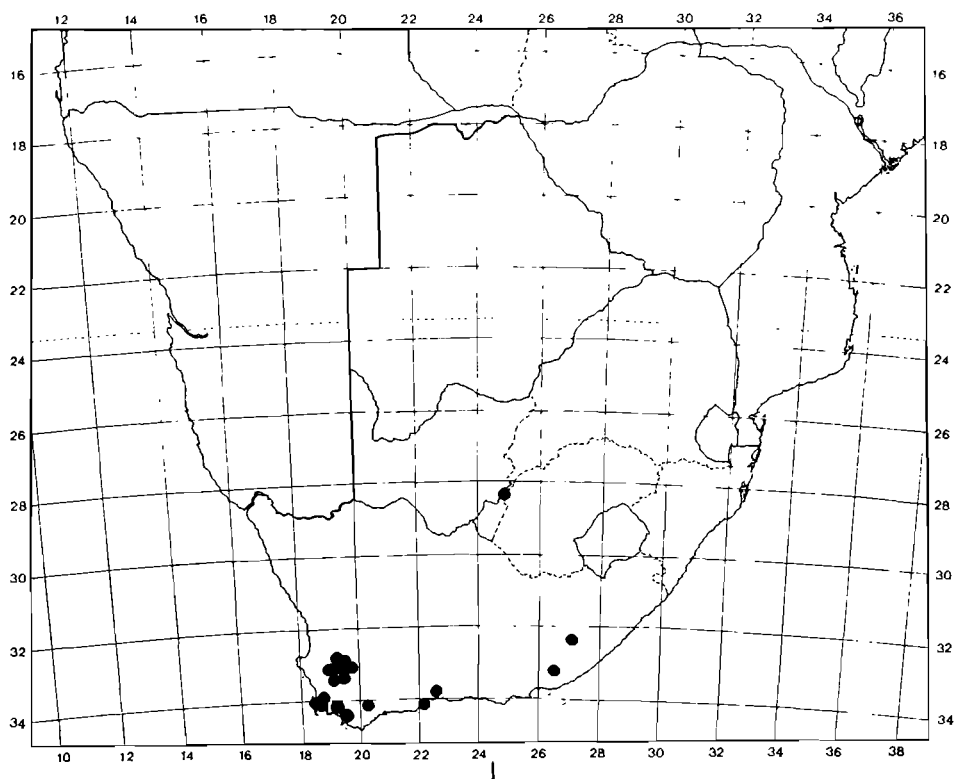
This monotypic genus is one of the most interesting of the South African pachygronthines since it occupies a very isolated position in the subfamily.

This species is frequently swept from vegetation in the southwestern Cape where it is common and widely distributed. Generally it is found in moist habitats. The only presumably authentic host record that we were able to obtain was of a large number of individuals taken 45 km west of Grahamstown on a member of the Cyperaceae, *Fuirena ecklonii* Nees. This we believe to be a true host plant and a sedge host is in keeping with the feeding habits of other members of the tribe Pachygronthini within which tribe this genus has been placed. We also took it several times from grasses and from Restionaceae but were unable to establish a definite host relationship.

Fifth instar nymph: (alcohol) Just S. Outeniqua Pass summit, S. of Oudtshoorn, Cape Province, Feb., 7 1968.

Body elongate, slender, nearly parallel sided; head uniformly black, pronotum, scutellum and wing pads variegated with black, dark brown and light reddish brown; on pronotum a longitudinal black band running just within lateral margin and a second band on either side of meson coalescing on anterior $\frac{1}{2}$ of pronotum, area between bright reddish brown; on scutellum a mesal pronotal band continued along lateral scutellar margins nearly to posterior end, a second black longitudinal stripe along meson; wing pads largely dark brown, becoming testaceous mesally near base and laterally adjacent to base and within pale whitish explanate margin; abdomen yellow with a longitudinal red stripe along inner margin of connexivum, a second longitudinal red stripe midway between lateral margins and meson, and a third stripe anterior to scent gland orifice mesally; area from anterior scent gland orifice caudad suffused with reddish (in 1 specimen completely red, the other variegated with irregular red flecks); sclerotized area around scent gland orifices (which are present between terga 4-5 and 5-6) ovoid, sclerites anterior to gland openings somewhat larger than posterior, black in color; 8th and 9th terga black, strongly contrasting with preceding segments, 8th segment marked with a longitudinal divergent brownish stripe on either side of midline, and a transverse brown fleck near antero-lateral margins; first antennal segment yellowish brown, contrasting with darker succeeding segments, second segment becoming reddish brown toward base and appreciably lighter than succeeding dark chocolate brown segments (in one specimen segments 1 and 2 are both reddish brown and contrast strongly with the darker distal segments), base of antennal segment 1 also dark brown; below chiefly black on head and thorax, but sternum pale yellow, abdomen with longitudinal striping similar to dorsum; sterna 5, 6, 7 and 8 each bearing mesally a large quadrate dark brown to black patch occupying entire mesal area of each sternum, sternum 4 with a pair of irregular dark patches on either side of midline; legs nearly uniformly dark chocolate brown, femora with a narrow pale distal area.

Head strongly declivent, eyes prominent, set slightly away from antero-lateral pronotal margins, length head 0,72, width 0,92, interocular space 0,60; pronotum very narrowly

Map 1. *Uttaris pallidipennis*

carinate, no evident transverse impression, evenly convex on dorsal surface, length pronotum 0,66, width 1,04; wing pads linear with explanate lateral margins, extending to anterior end of 3rd abdominal tergum, length wing pads 1,04, length abdomen 2,26; fore femora strongly incrassate, armed below with 3-4 large spines with smaller spines interspersed on ventral surface; labium slightly exceeding fore coxae, length labial segments I 0,30; II 0,26; III 0,26; IV 0,32; antennae terete, 1st segment slightly swollen at distal end, length antenna segments I 0,44; II 0,30; III 0,29; IV 0,42; total length 4,20.

Distribution

Uttaris pallidipennis has a very definite association with the southern Cape floral region. As can be seen from the following locality data it is largely restricted to the southern Cape although occurring eastward at such localities as Meiringspoort, Goshen near Cathcart, Kimberley and near Grahamstown (map 1). These occurrences, we believe, will be associated with remnants of the macchia in these areas. In the southwest Cape it is quite common, and certainly represents a distinct element in this fauna. Slater (1955) in fact believed that it was an example of a species restricted to the southwest Cape. However, as previously noted, Slater (1964, 1966) mentions specimens from the Congo which do not

appear to differ significantly from South African material, and there thus appears to be a disjunct distribution range.

This species was reported by Slater (1955, 1964) from *Cape Province*: 'Cap. B. Sp.; Kimb.'; Wit River Valley, Bain's Kloof; Sneuwgat Valley, Tulbagh Division; Strandfontein, Cape Flats; Kirstenbosch, Upper Berg River, Franschhoek Bosreserve; Table Mt.; Blinkwater; Du Toit's Kloof; Elgin; Milnerton (Cape Town); Paarl; Muizenberg. *Orange Free State*: Spitzkop, Meiringspoort.

Additional material examined: *Cape Province*: Bain's Kloof, summit—Caledon, Hottentot Hollands 1 220 m—Ceres—Ceres, Upper Sources of Olifants River—Elandskloof Pass, base, nr. Ceres—Goshen near Cathcart; Goukamma—35 km W. Grahamstown—Gydo Pass, N. Ceres—Hermanus, Fern Kloof. Nat. Res.—Hout Bay, Cape Peninsula—Matroosberg, Ceres Dist. 1 070 m—Michels Pass Summit, SW. Ceres—Mossel Bay—Neuwieskloof Pass, Tulbagh—Noordhoek Beach, Cape Peninsula—Outeniqua Pass, just S. of summit—Tulbagh (Great Winter Hoek) 1 160 m. In British Museum (Natural History); South African Museum, Cape Town and J. A. Slater collections.

Pachygrontha lineata Germar

1837. *Pachygrontha lineata* Germar, *Silb. Rev. Ent.* 5: 153.

This species was taken in large numbers, both nymphs and adults, breeding on the seed heads of the sedge *Kobresia lancea* (Thunb.) Koyama. Both adults and nymphs, but particularly the latter, are very cryptically colored and closely resemble the seed sheaths. The sedges occurred in the Grootvatersbosch Forest Reserve (24 km N. Heidelberg, Cape Province) which includes a large stand of indigenous forest growing in dry clay soil in ravines in the foothills of the adjacent mountains. *Kobresia* is a large sedge that grows in abundance in the ravines under dense forest cover. At the time of collection (Jan. 5, 1968) the population was composed predominately of adults. Seeds of *Kobresia* were abundant on the ground below the plants and many *Pachygrontha* were present there as well as on the seed heads themselves.

Our only other collecting site was also in a forest area on the Phantom Pass Road near Knysna, Cape Province.

Fifth instar: (in alcohol) Grootvatersbosch For. Res.

General coloration bright yellowish brown; head, pronotum, scutellum, wing pads and 1st antennal segment bearing large, black to very dark brown punctures; antennae with 1st 3 segments dull yellowish brown, 4th segment contrastingly dark brown; legs yellow, distal $\frac{1}{2}$ of femora and areas on tibiae bearing numerous irregular brown spots and infuscations, distal $\frac{1}{2}$ of 2nd tarsal segment contrasting dark brown; abdomen pale yellow, nearly colorless, with a series of longitudinal broad bright red stripes as follows: midline of abdominal tergum, midway between meson and lateral margins and just within lateral margins, making a total of 5 longitudinal red stripes, abdominal venter marked as tergum; body above nearly completely glabrous, antennae with short inconspicuous semi-decumbent to nearly erect hairs.

Head somewhat declivent anterior to bases of antenniferous tubercles, eyes in contact with antero-lateral pronotal angles and slightly produced laterad beyond them, length head 0.88, width 1.04, interocular space 0.66; pronotum with lateral margins carinate and

sinuate, disc of pronotum evenly but not strongly convex, posterior margin slightly convex mesally, length pronotum 1,06, width 1,54; length scutellum 0,80, width 0,94; mesothoracic wing pads reaching well onto 3rd abdominal tergum, divergent, laterally prominently explanate, length wing pads 1,66; fore femora strongly incrassate with 3 major spines present and generally a 4th spine of intermediate length located near center of ventral surface of femora; labium extending well on to mesosternum, not quite attaining mesocoxae, length labial segments I 0,30; II 0,36; III 0,46; IV 0,48; antennae with 1st segment heavy and somewhat clavate on distal $\frac{1}{8}$, segments 2 and 3 terete, segment 4 narrowly fusiform, length antennal segments I 1,34; II 1,03; III 0,82; IV 0,68; total length 4,92.

Fourth instar: same data as fifth

Very similar in color and conformation to 5th instar; antennal segments with a dull reddish brown cast; wing pads strongly divergent, reaching only over 2nd abdominal tergum; length head 0,78, width 0,84, interocular space 0,59; length pronotum 0,76, width 1,28; length wing pads 0,72; length labial segments I 0,28; II 0,34; III 0,32; IV 0,36; length antennal segments I 0,78; II 0,68; III 0,58; IV injured; total length 4,10 (approx.—shrivelled).

P. lineata was known only from the Cape Province and Natal until Slater (1964, 1966) reported it from the Congo. As previously noted we believe this to be a forest inhabitant and the locality data to suggest a distribution limited to the southern Cape and to patches of forest along the escarpment in the Natal hills and in wooded kloofs in the veld. While the present concentration of records in the southern Cape (map 2) seems to indicate that it is most common there, it appears to have a wide but discontinuous distribution in southern Africa. The discontinuous nature of the distribution presumably is the result of the reduction of forest habitat, and the resultant occurrence of forest as isolated patches in the eastern and northern portions of the Republic.

This species was reported by Slater (1955) from *Cape Province*: Sonder End, Oudebosch. Additional material examined: *Transvaal*: Entabeni.

Cape Province: Blaauwkrantz Pass nr. Plettenberg Bay—Groot River Pass nr. Plettenberg Bay—Grootvatersbosch For. Res., 24 km N. Heidelberg—Keurbooms River—Knysna—Phantom Pass, 24 km NW. Knysna—Swellendam—Tradouw Pass, Swellendam—Uitenhage—Ysterhoutrug Picnic site, 29 km NE. Knysna.

Natal: Giant's Castle Park—Hilton—Howick.

Rhodesia: Salisbury.

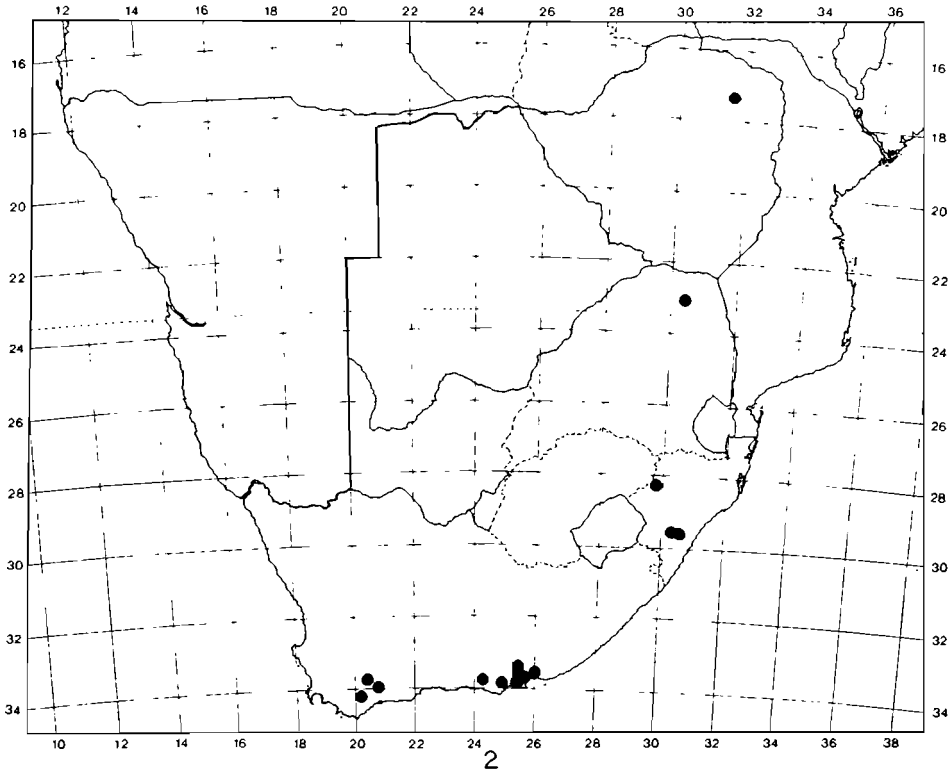
In British Museum (Natural History), South African Museum, Albany Museum, Transvaal Museum and J. A. Slater collections.

Pachygrontha pseudolineata Slater

1955. *Pachygrontha pseudolineata* Slater, *Phil. Jour. Sci.* **84**: 70.

This species is closely related to *lineata*. It is known only from Rustenburg, Transvaal where it presumably occurs in the wooded kloof. We were unable to obtain additional specimens from the area.

This species is certainly derived from *lineata* by isolation of the habitat with the development of the open veld following the last pluvial.

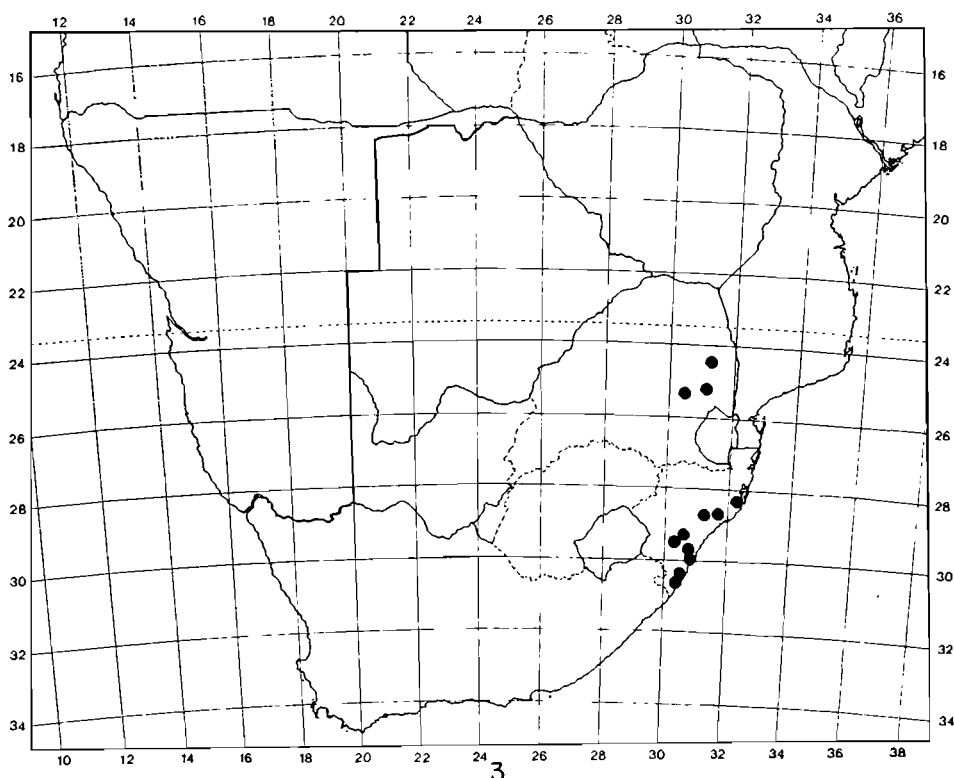
Map 2. *Pachygrontha lineata**Pachygrontha bipunctata* Stål

1865. *Pachygrontha bipunctata* Stål, *Hem. Afr.* 2: 149.

This species is extremely common on the Natal coastal plain where it occurs in damp areas along lakes, vleis and streams. The host plant is a large sedge *Fimbristylis complanata* (Retz.) Link. The plant grows two to four feet high, often in scattered associations of various marsh grasses and sedges. Both nymphs and adults occur in the seed heads and are exceedingly cryptic, closely resembling the seeds of the host plant. The habitat of *bipunctata* in open sunny marshy areas is in marked contrast to that of *lineata*.

Fifth instar: (in alcohol) 45 km WSW. Durban, Stony Hill, April 17, 1968.

Similar to *lineata* in color and general markings, possessing same yellowish brown coloration with 5 longitudinal red stripes on abdomen; differing from *lineata* as follows: dark brown to black punctures on pronotum limited to lateral $\frac{1}{2}$ to $\frac{1}{3}$ of pronotal surface, anterior to and laterad of calli punctures dark only laterally, behind calli dark on lateral $\frac{1}{2}$ of pronotum, dark punctures of head limited to meson, those on wing pads only on inner $\frac{1}{3}$ to $\frac{1}{2}$, remainder of punctures well developed but light brown, nearly concolorous with general pronotal surface; area about abdominal scent glands distinctly delimited with black; ventral surface of fore femora dark reddish, mottled markings on legs more con-

Map 3. *Pachygrontha bipunctata*

spicuous than in *lineata*; abdominal venter with lateral and midlateral red stripes confluent or nearly so, not delimited by a definite pale stripe; area between meso- and metacoxae dark brown in contrast to *lineata* where it is pale yellow; 4th antennal segment pale yellowish tan, concolorous with segments 2 and 3 in contrast to *lineata* where 4th segment is distinctly dark red-brown; general body shape more elongate and slender; abdominal sterna 6–9 with large quadrate dark brown mesal patches, nearly unicolorous throughout or darkened posteriorly, in *lineata* these areas progressively widened anteriorly and only mesally darkened; mesosternum with a clear white impunctate median area, in *lineata* punctures reach midline; punctures on ventral surface and pleural areas generally smaller and more closely set than in *lineata*; length head 0,98, width 1,04, interocular space 0,70; length pronotum 0,96, width 1,54; length scutellum 0,84, width 0,90, length wing pads 2,0; length abdomen 3,24; length labial segments I 0,34; II 0,32; III 0,30; IV 0,34; length antennal segments I 1,52; II 1,02; III 1,04; IV 0,90; total length 6,28.

The coloration of the pronotal and head punctures is somewhat variable. Some fifth instar nymphs of this species have a number of the punctures mesad of the calli darkened, particularly along the midline. However, there is always present a series of close set distinctly black punctures laterad of the calli, forming a stripe-like lateral area within the explanate margin of the pronotum.

Fourth instar: same data as fifth

Very similar to 5th instar but close set black lateral 'puncture—stripe' on pronotum not differentiated, punctures tending to be dark over entire body surface; 4th antennal segment somewhat darker than preceding segments, rather fulvous; length head 0,90, width 0,92, interocular space 0,86; length pronotum 0,72, width 1,24; length scutellum 0,54, width 0,80; length wing pad 0,74; length labial segments I 0,24; II 0,30; III 0,34; IV 0,40; length antennal segments I 1,12; II 0,90; III 0,90; IV 0,90; total length 5,08.

There is a fifth instar nymph from the same locality as above which has all of the punctures on the pronotum, scutellum and wing pads black but still shows the close set dark 'puncture-line' laterally on the pronotum. This specimen also has the mesothoracic wing pads posterior to the apex of the scutellum with a very broad brown band which encompasses the entire center of the distal half of the wing pad, leaving only narrowly pale margins, and the complete apex also dark brown.

Third instar: same data as above

Similar to preceding, lateral and mid-lateral red stripes on abdomen tending to coalesce into an irregular broad stripe and spot pattern anteriorly on dorsal surface; posterior $\frac{1}{2}$ of scutellum, mesothoracic wing pads and all of metathoracic wing pads dark brown, contrasting with yellow-brown of body surface anteriorly; antennal segments tinged with reddish spots; red abdominal coloration continued on meso- and metasternum but leaving meson narrowly contrasting white; legs very heavily spotted with red-brown and dark brown bands and mottled blotches, fore femora pale white on proximal $\frac{1}{3}$, becoming irregularly red and reddish brown on distal $\frac{2}{3}$; length head 0,70, width 0,74, interocular space 0,50; length pronotum 0,48, width 0,98; length wing pads 0,36; length abdomen 1,42; length labial segments I 0,22; II 0,26; III 0,24; IV 0,32; length antennal segments I 0,64; II 0,58; III 0,60; IV 0,62; total length 3,04.

Second instar: (in alcohol) Charters Creek, Lake St. Lucia, Natal.

Generally similar to preceding instar but with dorsal punctures much reduced, on pronotum only 1 or 2 punctures on lateral $\frac{1}{2}$, no punctures present laterally on meso- or metathorax; head with a broad impunctate area near each eye and impunctate on juga and tylus; reddish abdominal mesal stripe continued on to meso- and metathorax, lateral stripes also extending forward along lateral areas of the thorax; length head 0,50, width 0,58, interocular space 0,42; length pronotum 0,28, width 0,36; length labium 0,84; length antennal segments I 0,36; II 0,40; III 0,40; IV 0,56; total length 1,7 (approx.).

Distribution

P. bipunctata is one of the most widely distributed species of *Pachygrontha*, occurring almost throughout the tropics of the Eastern Hemisphere. Slater (1955) recognized the South African population as a distinct subspecies *incipiens* based largely on the greater size of the individuals. This decision may be of dubious significance when viewed against the variation present in other parts of the range. The important feature of the South African distribution (map 3) is that this species is an excellent example of a tropical species extending its range southward into the republic only along the narrow Natal 'tropical corridor' and in the lowveld of the eastern Transvaal.

This species was reported by Slater (1955, 1964) from *Transvaal*: Mayfern, Karino, Montrose. *Natal*: Eshowe, Mtunzini, Escombe, Umtentweni, Umkomaas.

Additional material examined: *Transvaal*: Acornhoek.

Natal: Albert Falls, Umgeni River, 21 km E. Pietermaritzburg—Charters Creek—Durban—Stony Hill, 45 km WSW. Durban.

In British Museum (Natural History), South African Museum and J. A. Slater collections.

Opistholeptus pallidus (Hesse)

1925. *Paraphlegyas pallidus* Hesse, *Ann. S. Afr. Mus.* 23: 75.

1955. *Opistholeptus pallidus* Slater, *Phil. Jour. Sci.* 84: 119.

This species is definitely a grass-feeding insect. It is frequently very common in dry savannah areas both in high veld and bush veld associations. Although we collected *pallidus* in large numbers from many localities we were unfortunately never able unequivocally to establish a definite breeding host. Frequently adults were taken on species of *Eragrostis* and related grasses. The elongate slender body of *pallidus* is an evolutionary adaptation to grass-living, both adults and nymphs being very cryptic in their habitat. Frequently *pallidus* is found associated with the myodochine *Paromius gracilis* Rambur.

Fifth instar: (in alcohol)

Fresh material differs from the dried specimen described by Slater (1955) in having 3 (sometimes 5) narrow longitudinal red stripes on the abdominal dorsum, 1 on the midline and 1 on each side $\frac{1}{2}$ way between midline and lateral margin (specimens from Sarta Camp, K.N.P. have an additional red stripe along the preconnexival area and are generally darker in color); the sternum sometimes lacks the mesal red stripe but has the meso-lateral stripe on each side; in other respects the fresh material is very similar to the dried specimen.

Fourth instar: (in alcohol) 8 km SE. Letaba Camp, K.N.P.

Similar to 5th instar but with brown markings on abdomen lighter and smaller; length head 0,70, width 0,58, interocular space 0,44; length pronotum 0,56, width 0,78; length scutellum 0,40, width 0,54; length wing pads 0,70; length abdomen 2,32; length labial segments I 0,20; II 0,22; III 0,20; IV 0,28; length antennal segments I 0,14; II 0,36; III 0,36; IV 0,50; total length 4,32.

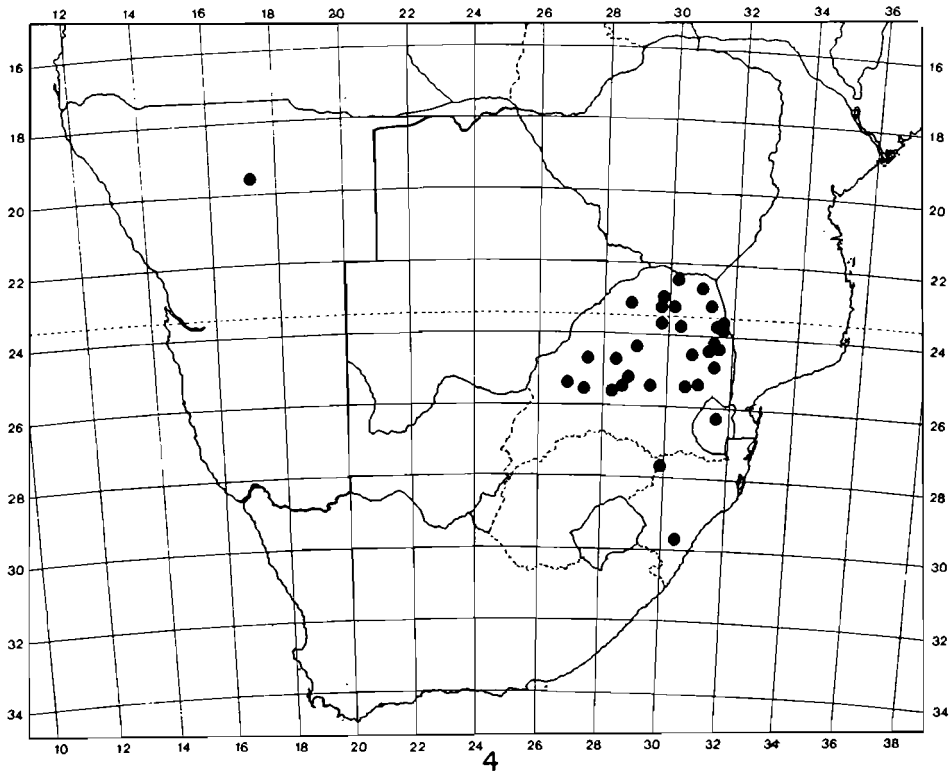
Third instar: (in alcohol) 32 km W. Komatipoort, Tvl.

Similar to 4th instar except abdomen nearly uniformly white except for red irregular stripes; length head 0,38, width 0,48, interocular space 0,40; length pronotum 0,38, width 0,58; length wing pad 0,34; length abdomen 1,54; total length labium 0,72; length antennal segments I 0,12; II 0,24; III 0,22; IV missing; total length 2,08.

Distribution

This is a widespread species in the savannah and associated dry areas of south and east Africa. In South Africa it is very common in the Transvaal (map 4) and extends into Natal. Despite the paucity of records it probably will prove to be widespread in South West Africa.

This species was originally described by Hesse (1925) from Waterberg, Damaraland (South West Africa) and subsequently reported by Slater (1955, 1964) from *Transvaal*:

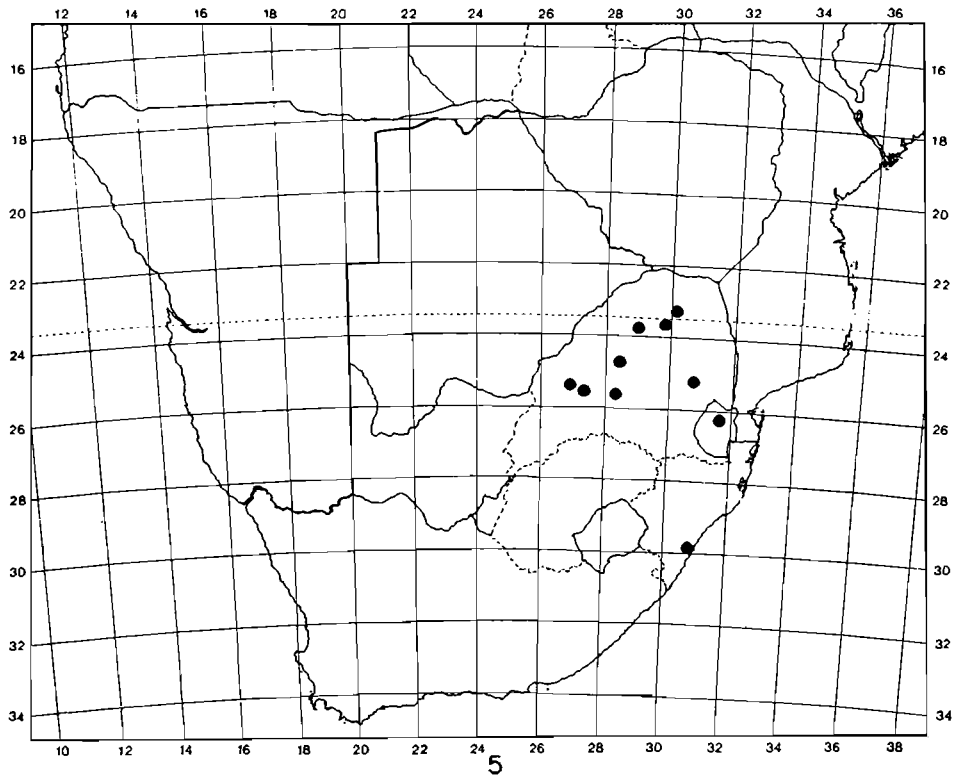
Map 4. *Opisthopterus pallidus*

Hennops River; Rustenburg, Pretoria Dist.; Fountains, Pretoria; Montrose. *Natal*: M'fongosi. *Botswana*: Tsessebe. *Swaziland*: Eranchi.

Additional material examined: *Transvaal*: 16 km N. Acornhoek—Blouberg, Leipsig Miss. Stat.—Buffelstantein Farm, W. Tvl.—Chromite nr. Thabazimbi—Damwall, Loskop Dam—Groenal—Hartebeespoort Dam, 32 km W. Pretoria—32 km W. Komatipoort—8 km SE. Letaba Camp K.N.P.—8 km E. Letaba Camp, Letaba River, K.N.P.—Letaba R., E. Olifants Camp, K.N.P.—Letaba Valley, Tzaneen Dist.—Letsitele Valley, Gravelotte Dist.—Louis Trichardt—27 km N. L. Trichardt—Magoebaskloof, 1 830 m—Mariepskop nr. Klaserie—Messina—10 km NW. Olifants Camp, K.N.P.—Olifants River nr. Olifants Camp, K.N.P.—Pienaarsriver Dam, 24 km NE. Pretoria—14,4 km N. Pietersburg—22 km NE. Potgietersrus—Pilansburg—Pretoria (at light)—Pretoria, Nat. Bot. Gardens—Punda Milia Camp, K.N.P.—Rustenburg kloof—5 km E. Satara Camp, Nwanedzi River, K.N.P.—16 km N. Satara Camp, K.N.P.—4 km S. Shingwidzi Camp, K.N.P.—14,4 km SSW. Skukuza, K.N.P.—Thabina, Zout.—10 km N. Warmbaths.

Natal: 7,4 km N. Cato Ridge—Ingogo.

In British Museum (Natural History), South African Museum, Transvaal Museum and J. A. Slater collections.

Map 5. *Opistholeptus capeneri**Opistholeptus capeneri* Slater

955. *Opistholeptus capeneri* Slater, *Phil. Jour. Sci.* **84**: 116.

This species is much less common in South Africa than is the related *pallidus*. Our scattered collection records indicate that like other members of the genus it is probably a grass feeder. It occurs in open savannah grassland in both high veld and bush veld country. The host plant is unknown.

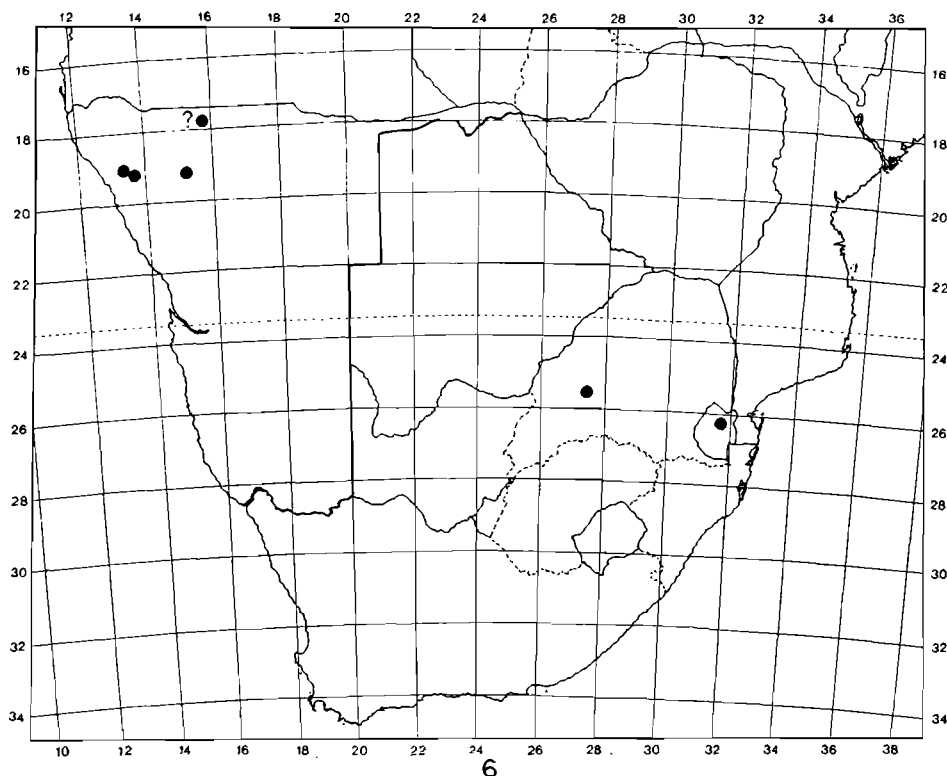
Distribution

Although originally known only from South Africa *capeneri* apparently is widespread in Africa. Slater (1964) reports material from French Guinea and (1966) from Katanga (Congo) and Uganda.

In South Africa the known distribution is restricted to the Transvaal and Natal (map 5). The actual distribution is probably very similar to that of *O. pallidus*.

This species was described from *Transvaal*: Hennops River, Pretoria District and reported by Slater (1964) from *Transvaal*: Mayfern and *Swaziland*: Eranchi.

Additional material examined: *Transvaal*: top Magoebaskloof, 1 830 m—16 km N.

Map 6. *Opistholeptus elegans*

Mookeetsi—14,4 km N. Pietersburg—Pilansburg—Pretoria, Nat. Bot. Gardens—Rustenburg—Sabie, Bridal Veil Falls—Warmbaths.

Natal: Durban.

In British Museum (Natural History) and J. A. Slater collections.

Opistholeptus elegans (Hesse)

1925. *Paraphlegyas elegans* Hesse, *Ann. S. Afr. Mus.* **23**: 72.

1955. *Opistholeptus elegans* Slater, *Phil. Jour. Sci.* **84**: 117.

We did not take this species during our South African collecting. Slater (1966) reports a record from Uganda of its breeding on a grass spike of *Eragrostis* sp.

Distribution

O. elegans is a scarce species in South Africa with only a few scattered records from northern areas (map 6). It appears that *elegans* has a more limited southward distribution than do *pallidus* and *capeneri*. The distribution is widespread in tropical eastern and central Africa.

Hesse (1925) described the species from Namakunde, Ovamboland and Slater (1964) lists it from *Transvaal*: Rustenburg and *Swaziland*: Eranchi.

Additional material examined: *South West Africa*: Castle Caynais—Kaross—Warmbad, Kaokoveld—Zesfontein.

In South African Museum and J. A. Slater collections.

Teracrius namaquensis Stål

1858. *Teracrius namaquensis* Stål, *Ofv. Vet. Akad. Förh.* 15: 317.

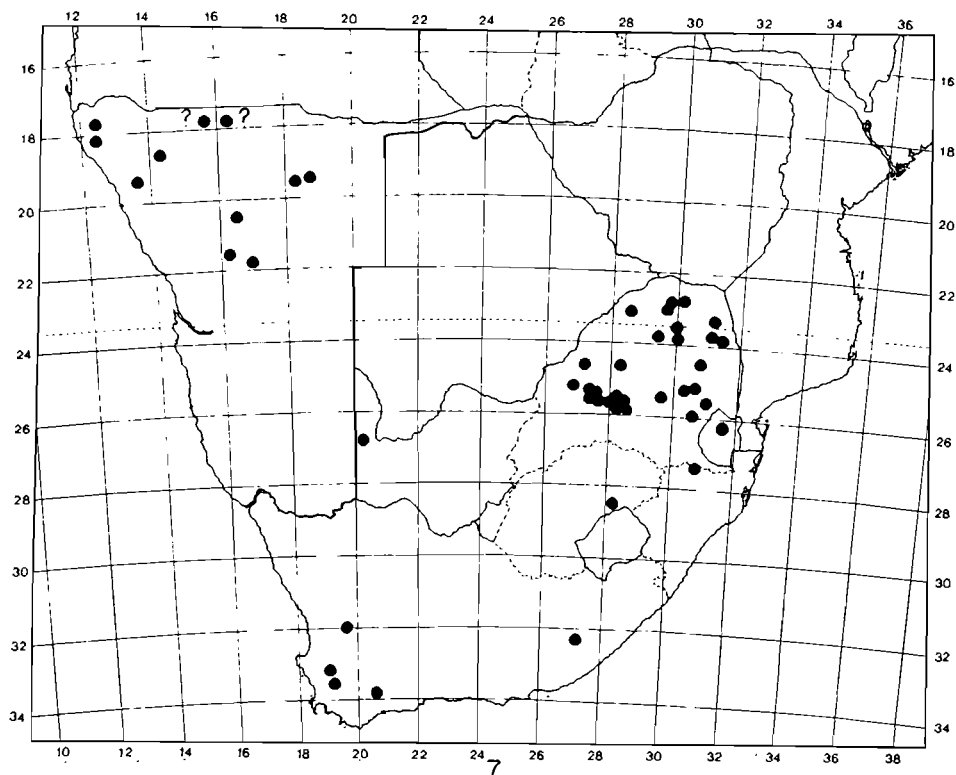
This is often an abundant species in open dry veld country where it feeds on grasses. Near the National Botanical Garden (Pretoria) and at Fountains, Pretoria we took nymphs and adults breeding in numbers on the grass *Eragrostis chloromelas* Steud. Adults were taken on other grasses as well. It is often found in the same habitat as is *Opistholeptus pallidus*.

Fifth instar: (in alcohol) Grootvatersbosch For. Res.

General coloration very pale testaceous to nearly white; antennae uniformly dark brown, this coloration continued as a broad stripe on antenniferous tubercles, basal area of head laterad behind eye and lateral margins of pronotum tapering posteriorly on pronotum to terminate well before humeral angles; a dark brown dash present on each thoracic pleuron near middle, not reaching anterior or posterior margins of pro- or mesopleuron but broadening and terminating along posterior margin of metapleuron; distal segment of labium, distal $\frac{1}{3}$ to $\frac{1}{2}$ of tibiae below and both tarsal segments infuscated with dark brown; 8th, 9th and posterior portion of 7th abdominal terga with a dark brown median longitudinal stripe widening caudad; abdominal venter with large quadrate brown patches mesally on sterna 6–9; sclerotized areas about abdominal scent gland openings very small and concolorous with surface of terga; pronotum and wing pads with a broad mottled brownish area on pronotum running just within dark brown stripe as discussed above and widening caudad, on wing pads occupying most of center of area within explanate flange, but not covering mesal $\frac{1}{2}$ of wing pad; pronotum and scutellum with a light brown mottled longitudinal stripe on either side of midline; body nearly glabrous above and below, lacking conspicuous punctures anywhere on surface.

Body spindle shaped, broadest across base of abdomen, tapering to a blunt point both anteriorly and posteriorly; head not declivent, tylus slightly exceeding distal end of 1st antennal segment, eyes set away from antero-lateral pronotal angles, length head 0,52, width 0,64, interocular space 0,37; pronotum with lateral margins narrowly explanate, posterior margin shallowly concave before scutellum with slightly produced lobes laterad of scutellum, length pronotum 0,50, width 1,04; length scutellum 0,48, width 0,54; mesothoracic wing pads broad, not divergent, lateral margins slightly convex to nearly straight, wing pads reaching anterior margin of 4th abdominal tergum, length wing pads 1,20; length abdomen 1,60; fore femora strongly incrassate, armed below with 4 major and several minor spines; labium extending well on to mesosternum, not reaching mesocoxae length labial segments I 0,12; II 0,10; III 0,09; IV 0,12; antennae short, stout, terete, 4th segment fusiform, length antennal segments I 0,14; II 0,29; III 0,28; IV 0,38; total length 3,68.

This species is widespread in the open country of south and east Africa and it also occurs on Madagascar. In South Africa it has been reported by Slater (1955, 1964) from *Transvaal*: Pretoria, Hennops River, Magaliesburg, Henley-on-Klip, Irene, Rustenburg,

Map 7. *Teracrius namaquensis*

Kloofzicht, Johannesburg, Mayfern. *Cape Province*: Obobogorop (192 km NW. Upington). *South West Africa*: Zesfontein, Okahandja, Hoarusib Otshu, Kowares, Kaokoveld (144 km SE. Ohopoho), Sanitatas, Anabib (Orupembe, 160 km W. Ohopoho), by Hesse (1925) from *South West Africa*: Otjituo, Grootfontein Damaraland, Namakunde, Otjimbumbé and Kunene Ovamboland.

In South Africa *namaquensis* has been taken in the southwest Cape as well as in the veld country even in such a typical macchia area as Bains Kloof. However, it is much more abundant in the Transvaal and South West Africa than in the Cape (map 7). In the latter area *Teracrius* was found to be associated with disturbed old field habitats. It is possible that it has only recently extended its range into the southern Cape with the expansion of agriculture and reduction of the natural macchia vegetation.

Additional material examined: *Transvaal*: Barberton—Buffelstantein Farm—Chromite nr. Thabazimbi—Hartebeespoort Dam, 32 km W. Pretoria—Letaba River, Letaba Camp, K.N.P.—Letaba Valley, Tzaneen Dist.—Loskop Dam, Damwal—Louis Trichardt—27 km N. Louis Trichardt—8 km N. Lydenburg—Magoebaskloof (base and summit)—Mariepskop nr. Klaserie—Meintjies Kop, Pretoria—Messina—16 km N. Mooketsi—Olifants River nr. Olifants Camp, K.N.P.—Pienaarsriver Dam, 24 km NE. Pretoria—14,4 km N. Pietersburg—Pilansberg—Pretoria, Nat. Bot. Gardens—16 km E. Punda Milia,

K.N.P.—Rietf. (Rietfontein)—Rustenburg—Sabie, Bridal Veil Falls—Sabie, Little Sabie River—Schoemanskloof, 32 km NE. Machadodorp—Tierpoort—10 km N. Warmbaths—Wonderboom, Pretoria—Zoutpansberg, 8 km N. Louis Trichardt.

Natal: 16 km S. Paulpietersburg.

Cape Province: Bain's Kloof—Ceres District, Matroosberg, 1 070 m—Goshen nr. Cathcart—Grootvatersbosch For. Res.

Orange Free State: Fouriesburg—Spitzkop, Meiringspoort.

South West Africa: Abachus, Otjiwarongo Dist.

Swaziland: Eranchi.

In British Museum (Natural History); South African Museum; Transvaal Museum; National Collection of Insects, Pretoria and J. A. Slater collections.

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